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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,967	12/31/2001	Jong-Hoon Yi	3430-0173P	5428
2292	7590	02/04/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			RICHARDS, N DREW	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 02/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,967	YI ET AL.	
	Examiner	Art Unit	
	N. Drew Richards	2815	AW

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 4,7 and 10-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12/1/03 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species IA claims 1-3, 5, 6, 8 and 9 filed 11/3/03 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5, 6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Ogawa et al. (U.S. Patent No. 4632514).

Applicant's admitted prior art (hereafter referred to as APA) teaches in figures 1 and 2 a color filter substrate for a display device comprising:

a base substrate (15) having a transmissive portion (A) and a reflective portion (C) (figure 2);

a black matrix (16) on the base substrate (15) (figure 1); and

a color filter layer (18) on the base substrate (figure 2).

The APA does not teach the transmissive portion having a groove or the color filter layer being on the black matrix. Ogawa et al. teach a color LCD apparatus including a base substrate (color filter substrate 2b) having a groove (terraces) in figure 16 and a black matrix (9) on the base substrate (color filter substrate 2a) with a color filter layer (4) formed on the black matrix and the base substrate in figure 27.

The APA and Ogawa et al. are combinable because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art use the grooved substrate with the color filter on the black matrix of Ogawa et al. in the device of the APA. The motivation for doing so is to minimize optical rotatory dispersion to improve contrast, range of reproduced color, and view angle dependency. Therefore, it would have been obvious to combine the APA with Ogawa et al. to obtain the invention of claim 1.

With regard to claim 2, the grooved substrate of Ogawa et al. is made of transparent plastic (col. 10 lines 37-39).

With regard to claim 3, the limitation of the groove being formed by molding is a product by process limitation that does not structurally distinguish over the prior art. However, the groove of Ogawa et al. is formed by molding.

With regard to claim 5, the APA teach:

forming a base substrate(15) having a transmissive portion (A) and a reflective portion (C) (figure 2);

forming a black matrix (16) on the base substrate (15) (figure 1); and

forming a color filter layer (18) of a first color on the base substrate (figure 2).

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The APA does not teach the transmissive portion having a groove or the color filter layer being formed on the black matrix. Ogawa et al. teach a color LCD apparatus including a base substrate (color filter substrate 2b) having a groove (terraces) in figure 16 and a black matrix (9) on the base substrate (color filter substrate 2a) with a color filter layer (4) formed on the black matrix and the base substrate in figure 27.

The APA and Ogawa et al. are combinable because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art form the grooved substrate with the color filter on the black matrix of Ogawa et al. in the device of the APA. The motivation for doing so is to minimize optical rotatory dispersion to improve contrast, range of reproduced color, and view angle dependency. Therefore, it would have been obvious to combine the APA with Ogawa et al. to obtain the invention of claim 5.

With regard to claim 6, Ogawa et al. further teach forming color filter layers of second and third colors (such that there are filters R, G, B) on the black matrix and on the base substrate. As shown in figure 16 three color filter layers are formed on the substrate. As shown in figure 27, the color filter layers are formed on the black matrix.

With regard to claims 8 and 9, Ogawa et al. teach the base substrate being made of transparent plastic and the groove being formed by molding (col. 10 lines 37-40).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Matsuyama et al. (U.S. Patent No. 5831701), Suzuki et al. (U.S.


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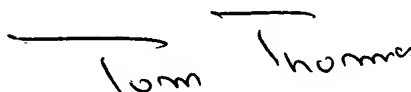
Patent No. 5668649), Sako et al. (U.S. Patent No. 6657700), Yoon et al. (U.S. Patent No. 6593982), Fujimori et al. (U.S. Patent No. 5956112).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on M-F 8:00-5:30; Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


NDR


Tom Thomas